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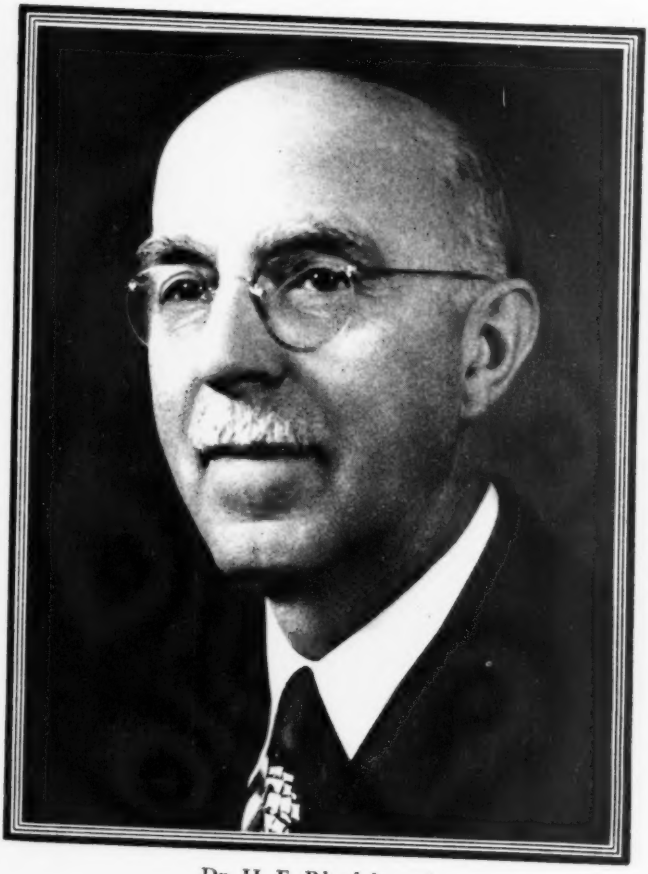

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DR. H. E. RHODEHAMEL was born March 7, 1876. Graduated from Starling Medical College, Columbus, Ohio, 1900. He has practiced in Spokane, Washington since that date. Elected 'Physician of the Year' for the State of Washington 1950. Member of the American Medical Association, Washington State Medical Association, Spokane County Medical Society, Washington State Obstetrical Association. President, Washington State Medical Association, 1939. Member of the Spokane Board of Health, 1914 to 1916. Member of the Medical Division of the State Planning Council, 1939-41. Trustee of the Washington State Medical Association for 26 years. A founder and member of the Spokane Medical Library since 1931. State Director of Social Security Medical Advisory Board, 1941 to 1948. Executive Medical Director of the State Department of Labor and Industries 1941 to 1945 for Eastern Washington. Chairman of the Obstetrics Committee for 19 years at Sacred Heart Hospital.

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EDITORIAL

Concept of Normalcy in Clinical Medicine

FREDERIC R. STEARNS, M.D., *Editor*

The term "normal" is derived from "norma" which means "a carpenter's square." From this original concept it becomes clear that "normal" is meant to be a quantitative measure. The paradoxical fact is, however, that in biology and in medicine, in particular, normalcy is essentially a qualitative concept which eludes quantitative definition. Inasmuch as normalcy has been defined in quantitative terms, it was identified with "average" values as determined statistically. Generally only those biological factors can be encompassed in this way which show a numerical distribution such as height, weight, pulse rate, blood pressure, cell counts, chemical substances, etc. This definition of normalcy has been expressed recently by E. S. J. King (Studies in Pathology, Melbourne, At the University Press, 1950. p. 2) when he stated: "By normal is meant the 'average' or 'means' of observations, qualities or phenomena; a means of general body behavior."

Yet, even such statistically calculated average quantities which are assumed to represent "normal" values have only relative significance; always the many determining factors which may change the quantity without changing the quality, or vice versa, must be taken into account. For instance, a diastolic blood pressure of 55 mm Hg. may be "normal" when the systolic blood pressure is 100 mm Hg in a young person; yet, if the diastolic blood pressure of 55 mm Hg. is combined with a systolic blood pressure of 200 mm Hg in a middle-aged individual, an aortic lesion may well be present, and the "normal" diastolic blood pressure in the first case may be indicative for an abnormal high pulse pressure in the second case. Or a pulse rate of 140 per minute in a temporary state of emotional upset may still be qualitatively nonpathological while it deviates quantitatively by 58 beats from the average.

Because of these discrepancies between statistically "average" and qualitatively "normal" values, many clinicians have pointed convincingly to the fallacies in the use of the concept of "normal" in clinical medicine, Julius Bauer (Jour. Ins. Med., 2:17 March, Apr., May, 1949) quoted Stockard who stated that every observer soon learns from even limited experiences with a great number of living animals that the average individual is rare or non-existent. Bauer, himself, reported on the frequency of variations which he found and studied in his own practice. These variations included unusual proportions of the body or of some of his parts, anomalies of development such as uvula bifida, supernumerary mammillae, partial syndactylism, irregularities of dentition, unusual or irregular distribution of hair, arched palate, etc. Of 265 individuals whom he examined, not one was free of all these variations; the majority of the examined persons exhibited five such variations from the accepted "normal" or "average." Lawrence S. Kubie (Conference of Cybernetics, Josiah Macy, Jr., Foundation, New York, 1950) has pointed very impressively to the inconsistency of statis-

tical evaluation of average biological values in the definition of "normalcy." He stated that "the fact that 99 percent of the population has dental caries does not make cavities in the teeth normal . . .". "It is not what we do but why we do it which in the ultimate analysis, determines normalcy."

A very sensible reaction to this very much misused concept of normalcy has been expressed by R. Pophal in his book "Der Krankheitsbegriff in der Koerpermedizin and Psychiatry," Berlin, S. Karger, 1925, page 39 ("The Concept of Disease in the Somatic Medicine and in Psychiatry"). He pointed out: "It is quite impossible for the medical man to establish whether this or that is healthy or pathological. The physician is concerned with the scientific evaluation of life processes and he is not cleverer when dubbing a given phenomenon as normal or abnormal. All he can say is this: from such and such a point of view, this is a favorable process; or, this is a life process which probably will bring in its wake more unfavorable reaction."

Apparently one of the most lucid definitions of a "normal" state of health has been proposed recently by E. J. Stieglitz in the Conference On Problems Of Aging (Josiah Macy, Jr., Foundation, New York, 1950, page 61). He stated that health is "a state of being in which all the functional capacities present maximum reserves as measured by their responses to stress." This definition leads to the concept of the General Adaption Syndrome of Selye and it is also almost identical with the definition of "normal" as "health range" which was set forth by John A. Ryle in Lancet (1: 1, January 4, 1947). In this article Ryle has emphasized approximately in the same way as Julius Bauer (quoted above) that there are "pathological" conditions or deviations from the average which are entirely consistent with "normalcy." He includes in these phenomena, for instance, epitrochlear lymph nodes, the root shadows of the lungs in the chest X-ray picture, mild ptosis of the stomach, and many more "abnormalities." Ryle goes much further in his rejection of the concept of "normalcy" than other investigators of the same problem; he contends that "normalcy" as a quantitative value would mean "standardization of structure and function" which would be essentially incompatible with life.

LEADING ARTICLE

On Scapular Grating

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For a number of years the author has been interested in a condition located around the upper inner angle of the scapula and known as the clinical entity of scapular grating. Whether the primary cause of this condition is of muscular origin or not, in view of the end effect upon the muscles of the shoulder girdle it can be classified among the interstitial myositides. It is believed that the first one to call attention to this condition was Boinet[1]. However the person who established it as a clinical entity and analyzed a different pathological situation upon which it develops was Küttner[4]. He established the pathogenisis as follows:

1. A certain amount of rubbing noises may be heard under physiological conditions without having any particular clinical significance.

2. There are predisposing congenital conditions of skeletal nature such as the formation of exostosis of the ribs. (Luschka[6])

In other cases there exists congenital hooking of the suprascapula; in still others there is a deformity of the thorax causing a pressure close to the inner upper angle of the scapula. (Galvani[2])

3. There are causes of traumatic nature which affect the configuration of the scapula. After a fall or a blow, a fracture of the upper portion of the scapula may occur which causes a backward deflexion of this part of the bone; a fracture of the ribs may produce a friction by means of an exuberant callus. A hydroma may form at this point.

4. Other skeletal deformities may be acquired such as syphilitic or tuberculous periostitis. This region is also a frequent site of osteochondromas which occupy the upper inner angle of the scapula and cause friction.

5. Of muscular changes which produce scapular grating there are the congenital atrophies or maldevelopments of the muscles which produce a scapular grating by the absence of the normal muscular padding. (Terillon[8])

There are also acquired conditions of atrophic nature; for instance in paralysis of the serratus or in progressive muscular dystrophy; all these cause scapular friction; so does also the atrophy which follows the ankylosis of the shoulder. Some have also reported scapular grating in patients with pulmonary tuberculosis in whom there is atrophy of the pectoral muscles. (Kirmission and Mauclaire[3])

The most common cause is muscle trauma. Crushing of the musculature gives rise to deep-seated hematomas which organize with fibrous infiltration of the muscles. Frequently this is followed by the formation of an adventitial bursa established between thorax and scapula. Normally there are two of these bursae. (Vogt[9]) One is situated between the upper portion of the serratus and the insertion of the levator, and the other, more uncommon one, lies between the anterior serratus and the lateral wall of the thorax.

Symptoms

The principal symptom is gradually developing pain and discomfort located at the upper inner angle of the scapula. (Lobenhoffer[5])

The pain usually occurs first on motion only but later it persists even at rest. It is noticed particularly when the scapula is moved forward in transitory direction. That is forward and backward or upward and downward motion. It is not quite so much marked in purely rotatory movement of the scapula. However the more forceful movements of the arm are a combination of transitory and rotatory movement, and therefore most any kind of exertion will bring on the pain.

The most striking objective feature is the peculiar crepitation. It can be heard over the upper inner angle with a stethoscope or is audible without auscultation and often is is even palpable. The grating is hard, coarse and includes many isolated loud cracks.

The Treatment

A trial should be given the conservative palliative treatment. It may aleviate the discomfort even if it does not accomplish a cure. This treatment consists first in immobilization of the shoulders by figure-of-eight bandage or an appropriate corset which draws the shoulder well backward. In some cases the irritation of the muscles subsides even though the crepitation persists.

In cases of greater persistency to the treatment is operative. We have found that the only procedure which gives relief is the resection of the upper inner angle of the scapula. This removes the cause of friction and allows the muscles to revert to a state of quiescence.

Of the number of these cases we had under observation we wish to report five.

Case: F.M. (48,346)

A 41-year-old woman which was admitted in May 1942. She complained of pain in the left shoulder, having been struck six months before by a heavy door. The shoulder was bruised and painful, and the pain was increasing. Osteopathic treatment brought no relief. One month before admission in May, 1942 she complained of tingling pain in the left hand and arm, especially the ulnar side. The examination showed a definite swelling of the trapezius with grating in the region of the upper inner angle of the left scapula. She got some relief by elevation of the shoulder. Abduction was limited to 45 degrees and the x-ray picture showed a prominence of the upper inner angle of the scapula. Conservative treatment was of no avail. Novocain injection of 12 cc. of 1% solution was carried out in order to localize the condition and the patient was operated and the upper inner angle of the scapula was resected. This brought on a great deal of improvement. There was no grating or pain and within two months she was able to do her housework. A few years later the patient came with the same complaint of the right shoulder and a very similar condition was found as is seen in the accompanying picture. In this case also a resection of the upper inner angle of the scapula was carried out with the same result.

Case: H.R. (46,649)

A 32-year-old man was admitted July 1941. This patient complained of pain in the right shoulder region. Five months before the patient had been working about a suction blower and his right arm was caught in the belt. The arm was twisted and the patient was thrown clear falling on his back. Following this he could not raise the arm due to the pain in the interscapular region. Examination showed that he had some numbness and tingling in the whole forearm which cleared up after several days. There was also a tender spot noted at the upper inner angle of the right scapula. Grating could be heard as

well as felt. A click appeared on auscultation. Movement of the arm was accompanied by harsh cracking sounds under the scapula. After conservative treatment had been tried without result an operation was performed in August 1941 which also consisted in the removal of part of supraspinous portion of the right scapula. The arm was immobilized in an abduction splint. Following the operation the grating had disappeared and although there was a slight weakness of the trapezius and serratus which remained, on the whole the action was good.

Case: V.J. (55,652)

An adult white female seen on February 23, 1945 with pain in the back and the neck. Grating is present on movement of the shoulders. X-ray shows hypertrophic changes on the upper medial edge of both scapulae. Treated conservatively.

Case: M.G. (70,865)

A 28-year-old white male seen May 16, 1950 with cracking of the left shoulder present for three months. Physical examination showed scapular grating with sharp click on moving scapula medially. X-ray shows a long projection of the posterior superior border of the left scapula. Conservative treatment.

Case: D.K. (70,820)

A 21-year-old white female first seen on May 2, 1950. Complained of pain and cracking on movement of the left shoulder for the past six months. On examination the left scapula is more prominent than the right. There is definite clicking and grating on moving the left scapula to the medial side. X-ray shows an exostosis or osteochondroma of the upper medial angle of the left scapula. June 6, 1950 the upper medial border of the scapula was removed. July 25th the patient was free of pain and was able to return to her work as a stenographer. There was no local tenderness and the wound was well healed.

The Conclusion

Scapular grating must be considered a clinical entity distinct from other fibrositic lesions of the shoulder girdle, especially those of rheumatic inflammatory character. It is well-known that multiple inflammatory foci occur in the muscle frequently in connection with joint involvement and it is difficult to separate them from the general picture of arthritis.

But there are also certain clinical types of fibrositis or muscle induration which appear as isolated entities. We see them in hard workers, in typists, in pianists, in truck drivers and so forth. Fatigue and posture are facilitating factors. Here belongs for instance the socalled cervico dorsal myositic syndrome, a condition also favored by fatigue and mal posture and poor mechanics of the body. The head and neck are thrown forward and a continous strain is placed upon the muscles of neck and shoulder gridle, which become very sensitive to pressure and appear hard and indurated. The pain radiates to the neck or the occipital region.

Another type is the lower trapezius syndrome, a fibrositis often also favored by postural strain. Here the lower border of the trapezius is the seat of tenderness and spastic contracture.

There is a glenohumeral syndrome which follows forced movement or strenous pulley exercise. Here the pain area is at the lower angle of the scapula.

In the pathological sense all these conditions are closely related to each other. They all represent a state of interstitial myositis brought about by infectious, rheumatic or purely traumatic causes. However the feature which characterizes the scapular grating as a clinical entity is its strict localization to the upper inner angle scapula and the x-ray evidence showing that this angle is usually drawn to a sharp point. In

some instances we find also some elevation of the scapula although not to the extent one sees in the congenital elevation or Sprengel's disease.

The fact that the causes practically always responded to the removal of the upper inner angle of the scapula means that no other extent of the fibrositis was ascertainable seem to place this condition as a definite clinical entity although in close relation with other fibrositis in other parts of the body.

Insofar as the operative procedure itself is concerned the technique described above is rather simple. By the curved incision around the upper angle the scapula is easily exposed after the stripping of the trapezius and the supraspinatous from the dorsal and lesser rhomboid, the subscapularis and the levator anguli from the ventral surface of the scapula. It is important to remove this angle as close to the base of the spine of the scapula if possible. The only precaution necessary is when one approaches the suprascapular notch where the suprascapular artery and nerve requires some precaution. We have found that the post-operative course usually is uneventful although good hemostasis is very desirable; otherwise the accumulated hematoma becomes organized and gives rise to very disagreeable adhesions which may frustrate the effect of the operation.

Lately Milch[7], reported on cases of scapular grating in which he used essentially the same method of removing of the upper inner angle of the scapula with satisfactory results.

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SIDE GLANCES at History of Medicine

MALARIA

The parasites causing malaria were first observed and described as "amalariae" in 1880 by Alphonse Laveran, a French army surgeon in Algiers. That malaria is transmitted by the bite of mosquitos was documented by A. F. A. King (1841-1914) in a paper "The Prevention of Malarial Disease, illustrating, inter alia the conservative function of Ague", which he read before the Philosophical Society of Washington on February 10, 1882, and which was published in "The Popular Science Monthly" in September, 1883. However, King's theory was antedated by Josiah Nott who, in 1848 already, had pointed to the part played by the mosquito. It is interesting that the first suggestion to treat psychoses with malaria was made by A. Raggi in 1876 (II processo febbrile nei pazzi. Riv. Clin. di Bologno, 6:163, 1876). Even before him an indirect malaria treatment of mental disease had been carried out by Galloni who withheld quinine from psychotic patients who incidentally had contracted malaria.

ORIGINAL ARTICLES

Management of Peripheral Vascular Diseases

FRANK W. BAILEY, M.D., M.A.

It is unfortunate that the real cause of most of the peripheral vascular disorders is unknown and hence a fruitful program of radical treatment in such cases cannot be planned intelligently. In a few exceptional conditions such treatment is possible. Since conservative treatment is that which offers the greatest chance for conserving the patient's life and limb and maximal functional utility of the diseased part, which conserves his time and money and which restores him to useful productive life with greatest promise for continued well-being, it is the correct and indicated treatment in all circumstances. It may be "medical" or it may be "surgical." The most conservative treatment may necessitate the most extensive operation, and the least conservative may utilize only monoperative measures.

The subject of peripheral vascular disease is more inclusive than it appears to be at first sight, if we think of peripheral in its widest sense. Strictly speaking, diseases usually considered in this category are Raynaud's disease, thromboangitis obliterans, arteriosclerosis obliterans, vasopasm associated with lesions of the spinal cord such as anterior Poliomyelitis with chronic ulceration of the extermities, acute occlusion of the major peripheral vessels and hyperhidrosis of nervous origin. It may also include vascular disorders of the extremities which involve the finer terminal portions of the peripheral vascular system, such as proliferative or chronic arthritis, traumatic arthritis and amputation stump neuralgia. If one wishes to continue this conception of peripheral as far as the vascular tree is concerned, one could include the carotid sinus syndrome, epilepsy, migraine, and typical neuralgias of the head, spastic paralyses of vascular origin and some forms of hypertension.

Special Examinations. — Having once made the diagnosis of a peripheral vascular disease entity, the physician is confronted with the management of the case. It is important to determine at the onset whether the patient's condition lends itself to medical management or whether surgical intervention is the proper treatment. After the patient has been receiving medical treatment for some time and it has failed, the question should be considered as to whether this patient can benefit from therapeutic surgical intervention. In selecting patients for surgery, when medical treatment has been of no avail, there are certain tests which can be performed in any physician's office. They are described hereafter.

The Elevation-Dependency Test.— One of the most useful tests is that of "changes of color" of the foot or hand following elevation and following dependency. For the study of the foot the patient should be in the supine position with the foot at body level. The leg is then elevated from the horizontal to a 45 degree angle and observed for color changes. In

the presence of occlusive arterial disease such as arteriosclerosis obliterans and thromboangiitis obliterans, the toes and feet will blanch. In very early cases the blanching may be patchy, involving one or two toes and part of the sole. The blanching may not be evident for two or three minutes. Pallor may occur even in the presence of a pulsating dorsalis pedis and posterior tibial arteries and indicates the occlusion of arteries peripheral to the points of palpation. Marked pallor of both feet usually indicates disease. Pallor of one foot in contrrast to normal color of the other is regarded as evidence of circulatory impairment in the pale foot.

The patient then lowers the foot to a position of dependency by hanging them over the edge of the examining table or bed while sitting up. Normal color should return within 10 to 15 seconds. In the presence of occlusive arterial disease the toes and feet will become a very bright red. This may require several minutes. The color changes to a cyanotic hue.

Test for Intermittent Claudication.—The patient may walk at the rate of 120 steps per minute with a stop watch to regulate his speed, or stand with his foot on a pedal which he presses down, thereby lifting a weight of 13 pounds 120 times per minute until the onset of pain in the muscles of his legs. Those with serious occlusive disease may be able to carry out this procedure for only 10 to 15 seconds without evidence of severe fatigue.

Anesthesia and Drugs as Diagnostic Aids.—It is common knowledge that widespread vasodilatation of the skin follows a general anesthetic, or a local vasodilatation follows a procaine block of the sympathetic ganglia which control the given area. A paravertebral procaine block of the first, second and third lumbar sympathetic ganglia, or the stellate ganglion with 10 cc. of 1% procaine, will produce vasodilatation in the lower or upper extremity respectively if there is no impairment of circulation due to advanced vascular disease.

Arteriography.—The simplest form of arteriography is the taking of X-rays of the soft tissues to determine whether the walls of the arteries are calcified to any degree. It is recommended that the entire limb should be subjected to this examination for the calcification is frequently patchy and may be missed. It may aid in the differential diagnosis of arteriosclerosis obliterans and thromboangiitis obliterans.

Another type of anteriography involves the use of radiopaque substance for intra arterial injection. Skiodan, diodrast and therotrast have been used. The most satisfactory of the three is thorotrast because it gives the best visualization of the vascular tree and is virtually painless.

The artery is palpated and the second and third fingers of the left hand held it in position while an 18 gauge 2 inch needle fixed to a 30 cc. syringe, containing the opaque medium, is introduced into the artery. Ordinarily 12 to 15 ccs. of thorotrast is sufficient for a single injection. The X-ray exposure should be made during the last 2 or 3 seconds of injection in order to study the arteries. Serial exposures may be taken during the next few seconds to catch the thorotrast as it proceeds distally to the digits and then returns through the venous channels.

The information sought is as follows: evidence of reduced caliber or occlusion of vessels; the degree of collateral circulation; congenital variations; arteriovenous anastomoses and aneurysms, and the presence and configuration of vascular tumors.

Venography.—There are two methods by which this may be carried out. In the first the radiopaque substance is injected into the arteries

supplying the veins to be studied and the X-ray exposures are timed to show the material as it flows back in the venous channels. The return flow can be controlled by means of a sphygmomanometer.

The other procedure is to inject the radiopaque substance directly into the lumen of the vein. If the vein is blocked there is dilatation and tortuosity of collateral veins. With this procedure it is possible to determine the presence of thrombosis of the deep veins which is indicated by the incomplete filling of the deep veins and the dilatation of the superficial ones. However, it should be pointed out that venography is not essential to the establishment of a diagnosis in a large per cent of cases.

The procedure is carried out by injecting 12 to 25 ccs. of thorotrast into a vein on the dorsum of the foot or ankle and then taking X-rays of the limb at 20 seconds and 30 seconds after completion of the injection.

Other More Technical Tests. — There are other more technical tests which require apparatus and trained technicians to operate such as: oscillmetric studies, determination of surface temperature and plethysmography. These studies and others like them, while of interest and sometimes of help, are generally not vital to the diagnosis of peripheral vascular disease.

Raynaud's Disease and Schroderma.—We will consider first Raynaud's disease in which our understanding of the relationship of the sympathetic nervous system to the peripheral vessels is clearer than in some of the other disease entities. Raynaud's disease is a form of peripheral vascular disturbance caused by tonic contraction of the smaller arteries in the extremities. During the early uncomplicated stages of the disease there are no obvious pathological changes in the walls of the arteries. The disease commonly involves symmetrical areas in the hands and feet, causing circulatory stasis with periods of cyanosis. The spasm is intermittent and occurs on exposure to cold or emotional stimuli; it involves only the terminal arteries, while the main vessels continue their normal pulsations. Frequently these patients complain of excessive perspiration which is also limited to the extremities. The disease most commonly occurs in young individuals with hyperirritable nervous constitutions. The severe cases go on to dry gangrene of the phalanges.

In early Raynaud's disease there is no permanent narrowing of the peripheral vessels. However, in the latter stage of chronic acrocyanosis and long continued digital asphyxia very definite pathological changes set in. The vessels show the organic changes of an obliterating endarteritis and are distinguishable from those seen in long standing Berger's disease. The capillaries in advanced Raynaud's disease show a characteristic pattern which consists of a striking elongation, tortuosity, and dilatation of the loops as seen in the nail bed. During an attack these loops are crammed full of stagnant erythrocytes. In the early stages there is no hyperplasia of the media. In the advanced stages there is endarteritis and thromobotic obstruction of the digital arteries in various stages of organization. There is also a sclerodermatous scar which invades the skin and subcutaneous tissue and compresses the digital vessels. It is in this advanced stage that sympathectomy cannot be expected to produce improvement.

Raynaud ascribed the cause to be a neurosis characterized by enormous exaggeration of the excito-motor energy of the gray parts of the spinal cord which control the vasomotor innervation, and this view has been held to date. He also held that the peripheral spasm in this disease is due to an increased susceptibility

to cold on the part of the smooth muscle in the digital arterioles.

There is no satisfactory medical treatment of Raynaud's disease. The various medical treatments which have been prescribed are: sending the patient to a warmer climate, various glandular extracts, Roentgen therapy with the intention of influencing the vasomotor outflow from the spinal cord and dorsal ganglia, fever therapy with foreign protein and vasodilatation. All these have been tried producing only temporary improvement. If the disease is severe enough to require operation it is most important to carry this out in the early stages before secondary endarteritis and sclerodermatous changes prevent a full vasodilator response. All authorities agree that sympathectomy will benefit the milder cases.

In selecting patients for operation the first essential is a correct diagnosis. Patients over fifty should be suspected of arteriosclerosis, even though they have palpable radial arteries as well as vasomotor changes and terminal ulcers of the extremities. A basal matabolic rate should be taken because in a few cases treatment with thyroid extract has been definitely helpful. All patients who appear to be suitable for sympathetic ganglionectomy should be tested with the elevation and dependency test. If there is no return of color and pulsations it is quite safe to assume that sympathectomy will be of little benefit to the patient with this degree of arterial spasm and obliteration. The procaine block test is also another diagnostic procedure which may be conveniently used to determine whether the patient is suitable for sympathectomy or not. A parevertebral injection of the ganglia of the first, second and third lumbar ganglia or the stellate ganglion will produce vasodilatation in the lower or upper extremity respectively if the disease is not too far advanced.

Hyperhidrosis of Nervous Origin—In this condition beads of perspiration form on the palmar and plantar surfaces and the fingers and toes. The clamminess of hands and feet may be really disabling. Hyperhidrosis is usually accompanied by some degree of vasospasm, so that the sweaty extremities are frequently cold and at times cyanotic.

The condition is brought on by hyperactivity of the sympathetic nervous system and is exaggerated by nervousness. It occurs in high strung individuals. Recent investigations on the function of the premotor cortex and the automatic centers in the hypothalamus indicate that sympathetic activity may be greatly influenced by the psychic states of the individual. It is interesting to note that it disappears in sleep when autonomic activity is reduced.

Extreme hyperhidrosis can now be relieved with sympathectomy. In the case of the lower extremities resection of the second and third lumbar ganglia can be counted on to stop all sweating below the knees, as well as to produce a lasting vasodilatation. In the case of the upper extremities the condition can be stopped by cervicothoracic ganglionectomy. This results in a Horner's syndrome which is, however, somewhat disfiguring particularly if the operation is done only on one side. The operation must usually be carried out bilaterally.

Vasospasm Associated with Lesions of the Spinal Cord.—Numerous victims of anterior poliomyelitis and occasional cases of pyramidal tract disease complain of coldness and discoloration in their paralyzed legs. These manifestations are usually of vasospastic origin and if they respond suitably to the procaine block test can be greatly improved by sympathectomy. At one time it was felt that the results of lumbar sympathectomy for poliomyelitis when associated with extensive loss of

muscular activity, was not satisfactory. Experiences of recent years indicate that the inferior results were related to inadequate denervation. Since employing the extraperitoneal approach and removing the first as well as the second and third lumbar ganglia, the results have been satisfactory.

Thromboangiitis Obliterans and Arteriosclerosis Obliterans.—Many individuals have organic vascular disease in addition to an abnormal degree of vasospasm. This may be confined largely to the digits, or may be very diffuse and involve the whole extremity.

Wherever there is ulceration, gangrene, conspicuous discoloration, pronounced and sudden local coldness or severe pain, the involved extremity should be placed at rest until the acute stage is past. The extremity should be washed daily with warm water. The use of tobacco must be permanently prohibited. Papaverine and also depropanex have been used as vasodilators, and for the release of smooth muscle spasm. The average dose is gr. orally or intravenously four times daily. Codine, acetylsalicylic acid, barbiturates, demeral and morphine are used to control pain. The latter should be used only in extreme cases of uncontrollable pain. Typhoid vaccine has been useful in relieving pain in small ulcers and in promoting wound healing. Injections are given every three days if the effect of the previous dose has worn off. The first dose is 5,000,000 organisms and the object is to obtain a 2 - 3 degree (F) rise in temperature. When 5,000,000 fails to produce a satisfactory are given so long as response is satisfactory. The treatment may be continued for 2 - 3 months after complete healing of ulcer. Heat by heat cradle is valuable in reducing pain and promoting normal circulation. Wet dressings of normal saline or penicillin 5,000 units per cc., warm foot soaks and sitz baths at 95 to 100 F., Buerger's exercises consisting of elevation of the limb to 45 - 60 degrees above horizontal head of bed for 2 - 3 minutes then over the edge of the bed for 5 - 10 minutes are conservative measures and should be carried out faithfully.

Thromboangiitis Obliterans. consists of the proliferation of the intima of the arteries and the arterioles and frequently has a large element of arteriolarspasm. In these early stages it may be impossible to distinguish this condition from a primary vasomotor disorder. When preliminary diagnostic tests, such as the elevation depending test and the procaine block test, indicate a favorable response, sympathectomy has been found helpful in the presence of known organic disease. But, in the advanced stages of the disease when all the main vessel pulsations, including that in the femoral artery are lost, sympathectomy is usually of no avail, especially when ulceration, infection or gangrene are present. Sympathectomy in combination with other forms of treatments, such as minor amputation of the digits, has frequently saved a limb.

Arteriosclerosis Obliterans may at times be associated with enough vasospasm to justify interruption of the sympathetic pathways. Besides improvement in the circulation of the skin an subcutaneous tissue, muscular circulation may also occasionally benefit as judged by improvement in, or disappearance of intermittent claudication. However, in dealing with patients of this order having known organic disease one must demonstrate by paravertebral block with procaine or arteriography that the circulation can be improved before recommending sympathectomy. We recognize, however, that there is a small group in which preliminary tests do not indicate that operation will be effective, yet experience has shown it to be suprisingly worth while in many instances.

Arteriosclerosis with Diabetes is almost never associated with a significant degree of vasospasm. This is the type of case in which sympathectomy is most likely to fail.

Impaired Circulation due to Frostbite, Thrombosis, Claudication. — When frostbite is associated with excessive vasoconstriction, circulatory difficulties follow. Some of these patients have been known to benefit from sympathectomy. Sympathectomy has been found to be helpful in the management of a few cases of thrombosis of the brachial artery with chronically impaired circulation. At times this condition is associated with a cervical rib and intermittent claudication may be present. It is thought that this complication is due to occlusion of the arterial tree by emboli. This condition is usually associated with lowered surface temperature and the main vessel oscillations may be reduced or absent. In such cases, section of the scalenus anticus muscle is not enough and in addition a cervicothoracic sympathectomy must be done which establishes collateral circulation with marked elevation of surface temperature, and relieves the intermittent claudication.

Thrombophlebitis. — Once having identified this peripheral vascular condition by the localized pain and tenderness, muscular cramps, color changes, local swelling and fever of 103-105, medical treatment consists of the following: elevation of the extremity, the application of heat in the form of moist hot packs the full length of the extremity, increase fluid intake to 3-4 quarts a day and the avoidance of deep breathing, coughing and straining in any way.

The use of dicumarol has been associated with a prompt subsidence of the symptoms of thrombophlebitis. The prothrombin time is determined before the first dose is given. If the prothrombin time is normal or lower, 300 mg. of dicumarol is administered orally in one dose. If emboli have already occurred heparin may be started immediately and continued until the dicumeral effect is manifested. Each day the prothrombin time is determined and reported before the dicumarol dosage for the day is decided. Dicumeral is administered in doses of 200 mg. daily until the prothrombin time is 30 seconds and then in doses of 100-200 mg. daily when the prothrombin time is between 30 and 35 seconds. When the prothrombin time reaches 35 seconds dicumarol is discontinued until the prothrombin time drops below 30 seconds after which it is again given in daily doses of 100 mg. If the prothrombin time should reach 60-65 seconds vitamin K should be given parenterally to avoid hemorrhagic manifestations.

In circumstances such as lack of facilities for anticoagulant therapy and hemorrhagic blood dyscrasias in the patient surgery is indicated. If a deep thrombus of the femoral vein is diagnosed it is removed with the patient in Fowler's position. It is our opinion also that the femoral vein should be resected proximal to the profunda vein. Since the lateral and medial circumflex veins open into the profunda vein another source of embolism is reduced by resection proximal to the profunda vein.

Chronic Ulceration of the Extremity. — Occasionally chronic indolent ulceration in the lower third of the leg may follow deep thrombophlebitis, varicose veins, or recurrent bouts of cellulitis with abscess formation and subsequent fibrosis. When such ulcers fail to respond to ordinary methods of treatment, study may reveal a large element of vasospasm associated with the organic changes. Their condition is no doubt due to the

fact that these particular individuals have always had more than the average amount of peripheral sympathectic spasm of the arterioles. When preliminary diagnostic tests are favorable, improvement has followed sympathectomy.

Acute Occlusion of Major Peripheral Vessels. — Following sudden occlusion of major peripheral arteries the danger of gangrene is great. The lower extremity is more vulnerable than the upper, as the collateral circulation is poorer. Spasm of the entire vascular bed distal to the lesion may follow. If the collateral circulation fails to carry enough blood to the tissues diffuse thrombosis will follow and gangrene will develop. The early interruption of the sympathectic supply to the extremity by paravertebral alcohol injection is strongly recommended. Other adjuncts such as heparin, dicumeral should also be employed. It has been demonstrated that these changes can be minimized, or entirely eliminated by lumbar sympathectomy.

Conclusion.—It should be made clear at the conclusion of this presentation that the management of peripheral vascular disorders implies the judicious utilization of indicated operative procedures in addition to all helpful non-operative measures. Any surgeon who neglects proven non-operative aids does an injustice to his patient. Equally negligent is the physician who considers resort to operative aid as a therapeutic failure, and who continues ineffectual or less effective medical treatment when surgery obviously would produce a better result. It is unfortunate that a short of barrier has arisen separating so-called medical and surgical therapy. Operative intervention is simply one means of treatment and should be advised when indicated, and in no other circumstances, regardless of the special interest of the attending doctor, whether he be physician or surgeon.

Amyloidosis

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Amyloidosis is a definite pathological and clinical entity, characterized by the presence of a homogeneous amyloid material in selective tissues and organs.

Incidence:

Amyloidosis in human beings is considered an infrequent disease. This is partly due to the fact that it is often overlooked in the presence of the primary disease and to the failure to entertain its possible existence in some obscure conditions. Prior to the institution of chemotherapy and antibiotic therapy, its incidence in a general hospital varied from 0.6 to 1.7 per cent of autopsies performed. In a chronic disease hospital it was about 7.2 per cent; in a tuberculosis hospital, 21 per cent. It occurs in about 44 per cent of all cases of tuberculosis with suppuration. Today its incidence may be lower in certain types of infection, which respond to more recent therapeutic measures. However, this should not decrease our interest in this disease because it may be prevalent in many chronic infections and tropical diseases for which we have no specific measures. Also, in view of increased longevity and consequent rise in the incidence of neoplasms in human beings, amyloidosis may be present in many unsuspected

cases. Often special staining methods may be the only means of identifying this condition.

Etiology:

There is still a great deal of controversy concerning the chemical nature of amyloid, its source, mode of formation and the reasons for the selective sites of deposition of this material.

The exact chemical nature of amyloid is not known. It is probably a mixture of protein complexes with incorporation of other molecules such as carbohydrates, etc. Amyloid is not a chemically constant substance. This is borne out by the variability in staining reactions and in biochemical and biophysical studies of the various protein components of amyloid and in its amino-acid composition which shows qualitative and quantitative differences.

Amyloid disease is the result of deposits of protein complexes in the tissue and is not due to degeneration of the tissue per se. It is possible that amyloid material or its precursor is a normal constituent of the blood and tissue fluids, in minute amounts, which are increased in amyloidosis. This protein material is carried in the blood stream in some form. It cannot be excreted as such because its particles are too large to pass through capillaries. It is, therefore, either precipitated or deposited at particular sites,—namely, where reticuloendothelial cells are present. Or, it may be phagocytized by these cells and subsequently excreted or deposited. Other protein molecules as well as carbohydrate, etc. are incorporated, with the resultant formation of larger chemical complexes. It is these compounds that form the characteristic amyloid material.

One of the theories of the causation of amyloid is that it follows any condition, local or general, which leads to excessive tissue destruction or release of tissue proteins. In this derangement of protein metabolism, the reticuloendothelial system plays an important role.

Some workers lean to the view that amyloid may be due to an acquired hypersensitivity to protein substances — that it is due to an antigen-antibody reaction. In such a case, the amyloid material is at first the result of a reaction between blood and tissue proteins and subsequently may be integrated with derivatives of the necrotic tissue.

Classification:

Probably all forms of amyloidosis have a common denominator and are, therefore, strictly secondary to it. However, until a better understanding of the chemical and pathological nature of amyloidosis is acquired, a clinico-pathological classification is more satisfactory and less confusing. There are three commonly recognized varieties of amyloidosis.

I. Primary Amyloidosis (Atypical Amyloidosis).
   a. Primary Systemic Amyloidosis.
   b. Focal or Tumor-forming Amyloidosis.

II. Amyloidosis associated with Multiple Myeloma.

III. Secondary Amyloidosis

Pathology:

Primary amyloidosis, often called atypical amyloidosis, occurs in the absence of any known pre-existing disease. The most common sites may be observed in Table I. Histologically the striking findings consist of diffuse or patchy amyloid infiltration of the interstitium of the muscles, causing in time marked compression atrophy of the muscle fibres. The media of small blood vessels is also affected. The amyloid often stains in a very variable and atypical manner.

The following stains and their typical reactions are listed:

1. Congo red stain—Red
2. Hematoxylin and Eosin—Pink
3. Methyl Violet and Crystal Violet—Stains Amyloid Metachromatically
4. Van Gieson Method—Yellow

Careful studies of very early amyloid show, at first, only intracellular amyloid in the so-called tissue histiocytes. The free histiocytes (reticular cells) are found in connective tissues and probably play the initial important role in primary amyloidosis. In the latter it is more evident that tissues of mesenchymal origin are involved. The fixed histiocytes (endothelial cells) are found in large numbers in serous membranes and in endothelial lining such as the sinusoids of the liver and spleen. This system of scattered reticular and endothelial cells, forms the reticulo-endothelial system. These cells possess in common the property of ingesting foreign particles and metabolic products. The initial pathologic picture is essentially the same in both primary and secondary amyloidosis except for the difference in sites of involvement. In primary amyloidosis one has in the main a response of the free histiocytes or reticular cells to the inciting cause and in secondary amyloidosis it is chiefly the fixed or endothelial cells.

Secondary amyloidosis is the more frequent and typical form, and is seen in conjunction with a variety of diseases. Among these are tuberculosis, osteomyelitis, bronchiectasis, pulmonary suppuration, chronic pyelonephritis, chronic suppuration in any organ, multiple-myeloma, rheumatoid arthritis, chronic ulcerative colitis, Hodgkins disease, chronic leukemia, carcinoma of lung and stomach, and a host of other chronic infections, tropical diseases and malignancies. The organs most frequently involved are the spleen, kidney, liver and adrenals. Other organs may be affected.

Grossly, the organs are enlarged, firm and rubbery and present a translucent, waxy appearance. Microscopically, the amyloid accumulates between the parenchymatous cells and in connective tissue. Blood vessel walls are involved early and to a striking degree. As amyloid deposition increases, it tends to cause pressure atrophy of the parenchymatous cells.

The amyloid is a homogeneous, translucent material, differentiated

TABLE I *

Localization of Amyloid Deposits

Location	Per Cent of Cases	
	Primary** Amyloidosis	Secondary*** Amyloidosis
Heart	85	1
Tongue	57	1
Gastrointestinal tract	52	4
Skeletal Muscle	41	—
Kidney	26	72
Spleen	24	89
Adrenal Gland	22	41
Liver	14	63
Bone and Joint	11	—

*Table obtained from "Principles of Internal Medicine"—Harrison, Chapter 85, by Thorn, G. W. and Emerson, Jr., K. Page 707.

**Data from Eisen: Am. Jour. Med. 1:1444, 1946 (46 cases).

***Data from Rosenblatt: Am. Jour. Med. Sci. 186:558, 1933 (110 cases)

from other deposits by special staining reactions and its deposition in characteristic sites. As a rule, especially in secondary amyloidosis, amyloid deposits can be readily detected with the use of hematoxylin and eosin. However, there are many occasions, especially in the study of very early amyloid and in primary amyloidosis, when one must resort to several stains to make the diagnosis.

Primary Amyloidosis:

About 70 cases have been reported in the literature, most of which were diagnosed post-mortem. However, recognition may not be so difficult if one keeps in mind certain clinical features it usually occurs after the fourth decade of life; it is not associated with any known underlying condition; if unexplained asthenia, muscle weakness, fatiguability, symptoms of heart failure or gastrointestinal symptoms are present singly or in combination, then one should conduct a more careful search for cutaneous lesions and tumor formation such as focal tumors of skin, tongue and respiratory tract. Purpuric lesions, especially at points of frequent minor trauma, are common.

It is important to remember that congestive heart failure is the commonest clinical manifestation of primary systemic amyloidosis. There is often electrocardiographic evidence of myocardial damage.

The presence of macroglossia is an important and well-recognized sign of amyloidosis. It is frequenctly mistaken for cancer of the tongue.

Diagnosis of primary amyloidosis may be established by means of biopsies from such sites as the skin, buccal mucosa, tongue, and skeletal muscles.

Focal deposits of amyloid may occur in many parts of the body and are characterized by the presence of small solitary or multiple tumors. When symptoms are present, they are the result chiefly of mechanical pressure. The most common sites are the respiratory tract (chiefly larynx), skin, bladder, urethra, pharynx, tongue and eye. These tumor-like deposits are usually of the primary type. The diagnosis is made by pathological examination of the biopsy material. The accessible masses may be extirpated. When radical removal is not feasible, radiotherapy may be instituted.

Amyloidosis Complicating Multiple Myeloma:

About 15% of the cases of multiple Myeloma are complicated by Amyloidosis. Diffuse deposition of amyloid throughout the body may be present. However, the usual findings are large focal intra or extra-osseous amyloid tumors. The form found is the one generally seen in primary amyloidosis.

Secondary Amyloidosis

The diagnosis of secondary amyloidosis may be masked by the primary illness, e.g., a chronic infectious or wasting disease. The clinical features may vary considerably. This due to the fact that both the primary and secondary illnesses contribute to the symptomatology.

It is the feeling of most authors that amyloidosis usually develops within one to two years after the onset of the primary condition. Chronic suppurative diseases and most commonly tuberculosis, form the majority of cases in this country.

The constitutional symptoms such as fever, pallor, anemia, anorexia, loss of weight, and weakness are usually present. As the condition progresses a more rapid increase in these symptoms occurs. In place of pallor a pasty or waxy color appears. The wasting and cachexia, unless obscured by dropsy, are characterized by marked loss of subcutaneous fat in the extremities, face and thoracic region, as well as by poor muscle tone and flabbiness. The abdomen enlarges due to the increase in size of the liver and spleen. The superficial abdominal and

thoracic veins become prominent and, later, markedly dilated and tortuous. Edema of the feet and legs may occur at any stage of the disease, though it is more often seen in the advanced state. In some instances, general anasarca is present.

There are, however, numerous variations in the clinical features depending on the organs chiefly affected and the degree of involvement. For example, the kidney may be either the only one affected, or the only one showing significant clinical symptoms.

In secondary amyloidosis the organs most frequently involved are the spleen, liver, kidneys and adrenals. Amyloid in the spleen and liver leads to enlargement of these organs.

The spleen is more frequently involved in secondary amyloidosis than any other organ. When palpable it is hard and not tender and, except for its size, it produces no other symptoms. The liver is involved in over 60% of the patients. It is firm, smooth and not tender. It is often of large size. Jaundice is rare. Liver function studies are usually negative, except in cases of severe involvement.

Renal amyloidosis is of frequent occurrence. Striking albuminuria and later on, hyaline, granular, waxy and epithelial casts are found in the urine. Polariscopic examination of the urine may show doubly refractile lipoid bodies. Pyuria and hematuria are not present as a rule. Albuminuria is present in 90% of the cases of renal amyloidosis. It is the first evidence of renal involvement.

Studies of the composition of urinary proteins indicate that the amount of globulin excreted is greater in amyloidosis than in any other renal condition or in any other proteinurias. The albumin fraction varied from 35% to 60% in the urine of amyloid patients, whereas it was about 90% in chronic nephritis or lipoid nephrosis.

The plasma proteins are usually reduced in amyloidosis. The albumin fraction is affected to a greater extent.

Adrenal involvement occurs in about 40% of the cases. Despite this high incidence, clinical symptoms characteristic of adrenal insufficiency are rare.

Amyloid infiltration of the intestinal wall may produce gastro-intestinal symptoms. A presumptive diagnosis of intestinal amyloidosis may be made if there are gastro-intestinal symptoms such as anorexia, nausea, flatulence, alternating constipation and diarrhea and intermittent or persistent diarrhea associated with colicky pains. There may be suggestive roentgen findings.

Diagnosis

In arriving at a diagnosis, one should not look for classical symptoms. One should always keep it in mind when a condition is present with which amyloid is frequently associated. Thus the existence of tuberculosis, chronic suppuration of lung and bone, chronic arthritis, multiple myeloma, Hodgkins Disease, Chronic Leukemia, etc. etc. should alert one to determine whether amyloidosis is present. The presence of albuminuria, cylindruria, hypoalbuminemia, edema, ascites, hepatomegaly, splenomegaly, muscle weakness, fatigue, diarrhea, macroglossia, dysarthria, dysphagia, purpura, asthenia, congestive heart failure with dyspnea, nodular skin tumors of muscle or larynx, et. should suggest the possibility of amyloidosis.

Congo Red Test

The test is usually normal in primary amyloidosis. In secondary amyloidosis, the Congo Red Test is helpful, but one must realize that it is only one test. Removal of 90% or more of the injected dye can be considered strongly suggestive of amyloidosis.

Tissue Biopsy

Needle biopsy of the liver or spleen or of suspicious skin or muscle should be employed more frequently. Recently gingival biopsy has been advocated, even in secondary amyloidosis, because of the simplicity of the procedure.

To prove the presence of amyloid material one must use several special stains. Congo Red Stain is a valuable stain but there are instances when it has failed to stain amyloid tissue. If microscopic examination of sections of biopsy reveals a hemogeneous deposit which is moderately eosinophilic and which stains in a characteristic manner with Congo Red or with Methyl Violet and Methyl Green or Van Giesen Stain, then the diagnosis of amyloidosis may be made.

Prognosis:

The existence of amyloidosis presages a serious condition. Once unquestioned amyloidosis was present recovery has been rare. Disappearance of amyloidosis in experimental animals and in man have been reported. In humans these generally followed major operative procedures which eradicated the primary disease or general medical measures including anti-biotic and liver therapy.

Treatment:

Amyloidosis calls for the employment of all necessary measures for the medical and surgical treatment of the underlying primary cause and of amyloidosis itself. Hygienic and nutritional care such as rest, fresh air, an adequate diet, rich in all its components including minerals and vitamins, should be provided. Antibiotic treatment should be pushed to the limit. The clinical forms of amyloidosis amenable to surgery, should be subjected to the various modern methods of surgery. In the majority of cases the above measures are ineffective. In such instances, adequate liver therapy of a potent product (*) will be found rewarding if it is carried over a long period of time.

There is a preparation called 40% Whole Liver (VioBin), which is sold by the VioBin Corporation, Monticello, Illinois, and which comes close to meeting the rigid requirements. The suggested dose is 4 to 8 grams three times a day.

SUMMARY

Amyloidosis may be divided into primary and secondary types. Primary amyloidosis is of unknown etiology. Secondary amyloidosis is usually associated with a chronic infection or malignant tumors. The two types also differ in the nature of the pathologic lesion and in the localization of the amyloid deposits.

Prognosis in these cases is poor. Modern Surgery, antibiotic therapy and liver therapy, together or singly, have resulted in regression of this condition in an appreciable number of cases.

We recommend the so-called "Liver cocktail" with which we have had as good results as with our powdered whole liver.

Liver obtained from an abattoir is cleansed of its gross extraneous matter, especially gross blood vessels. It is then cut into cubes and passed through a Sep-Ro-Siv or Waring Blender. Fruit juices are added to wash as much of the liver as possible through the sieve of the machine. The residue from the funnel should again be put through the machine several times. A spoon is finally used to free the sieve of adherent liver.

The pressed tissue and the juice are collected in a bowl. Additional fruit juice is added to thin out the mixture, and this is then passed through a fine scoop sieve. The finished mash generally resembles a chocolate drink in color. The taste is that of the fruit juice used, is quite palatable, and is taken readily. The liver preparation should be kept in a cold refrigerator or icebox.

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Treatment of Congestive Heart Failure: Oral Use of a Combination of Xanthine and Mercurial Diuretics

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The mechanism involved in congestive heart failure has not been definitely established. The long-accepted concept of "backward-failure," which, translated, means myocardial insufficiency and decreased cardiac output, increased venous pressure, increased blood volume and edema, has been challenged by a new concept, "forward-pressure." Schroeder[1] suggested the mechanism involved is myocardial insufficiency with reduced cardiac output resulting in diminished blood flow, decreased glomerular filtration and reduced excretion of sodium, increased blood volume and edema. In this theory, supported by other investigators[2, 3, 4], the role of the kidney and salt restriction are of major basic importance.

An increase in medical knowledge and the cooperation of pharmacological research have resulted in more intelligent management of the patient with congestive heart failure. There can be no doubt that the xanthine and mercurial diuretics have the capacity to aid in the elimination of edema fluid from tissues and to increase the rate of waste product excretion. As adjuncts to the therapeutic regimen of rest, low sodium diet, digitalis and psychotherapy, these diuretics contribute to the well-being of the patient with congestive heart failure, reducing the incidence of invalidism and, more likely than not, adding useful years to the patient's life.

"The xanthine drugs," according to Smith et al,[5] "are valuable therapeutic agents in the treatment of disease of the coronary arteries, whether the cardiac disability is expressed by congestive failure, paroxysmal dyspnea, angina of effort or occlusion of the coronary artieries." They continued: "Theophylline should be prescribed as soon as the diagnosis of disease of the coronary arteries is established, and its administration should be continued for a long period, in order to insure maximum benefit from the medication."

In his summary of therapeutic claims for xanthine derivatives Boyer[6] stated that "the xanthine derivatives are useful diuretics in congestive heart failure. The diuretic action of theophylline is somewhat more intense but less lasting than that of theobromine compounds."

Dyspnea of cardiac failure, according to Greene and his associates[7] reacted favorably to theophylline administration.

Theophylline is frequently combined with an amine to make it more soluble and possibly less irritating to the gastro-intestinal tract. We became interested in a combination of theophylline combined with isopropanolamine (Theopropanol)*, introduced by Greenbaum[8] and first evaluated by Robertson and Faust[9] with reference to capillary dilatation and venous and spinal fluid pressures. This combination produced gratifying results in our hands in coronary artery disease, angina of effort and in patients with moderate edema of cardiac origin but with normal renal function. It was

*Theopropanol supplied by The National Drug Company, Philadelphia 44, Penna.

observed that Theopropanol, in the recommended therapeutic dose, was effective without the attendant side effects so frequently observed with other theophylline-amine compounds.

In the treatment of angina pectoris, Riseman[10] found several purines of definite therapeutic value and listed them as sodium acetate derivatives of Theobromine and Theophylline, Theophylline Calcium Salicylate, Aminophylline, Theopropanol, and, to a lesser extent, Glucophyllin.

Oral and intramuscular administration of Theopropanol, according to Fowell et al[11] gave a satisfactory diuretic response in 11 of 14 cases of congestive failure of arteriosclerotic origin and in one of two cases of hepatic cirrhosis. The response in cases of rheumatic heart disease and of hypertensive nephritis was not satisfactory.

A summary on the uses of Theophylline by Falk 12 recommended "its use by mouth with digitalis and mercurial diuretics, augmented by certain diuretic salts as ammonium chloride or potassium nitrate for control of congestive heart failure in arteriosclerotic and hypertensive heart disease."

Mercurials represent the most potent and effective diuretics available for edema caused by congestive heart failure. Combinations of theophylline with organic mercurial compounds, as reported by Marvin[12] have shown a considerable increase in indiuretic capacity over the mercurials alone, while decreasing the incidence of side effects.

An oral mercurial diuretic was employed by Batterman et al[13] with good results. They observed that concurrent use of ammonium chloride increased the diuresis. A rest period of one week between monthly courses of oral mercurial diuretics was recommended by Batterman et al[14] to obtain more positive results. In the treatment of ambulatory patients with congestive heart failure, Abramson et al[15] used a combination of theophylline and a mercurial orally in daily doses with success. These investigators recommended individualization of the dosage.

It has been suggested that theophylline combined with a mercurial diuretic may facilitate the absorption of the mercurial. The combination of Theopropanol with a mercurial such as Mersalyl appeared rational as an adjunct in the medical management of excessive fluid retention.

Uncoated tablets of Theopropanol 0.05 gm. (equivalent to 0.04 gm. Theophylline) combined with Mersalyl 0.08 gm. were made available for our study.

Material and Procedure

The subject group consisted of 39 ambulatory patients with congestive heart failure. Of the 39 patients, 29 had arteriosclerotic heart disease, 6 had hypertensive heart disease and 4 had rheumatic heart disease.

These patients were being treated with intramuscular injections of a mercurial diuretic. The need for this therapeutic procedure was demonstrated by a quick recurrence of congestive heart failure when the injections were discontinued. It was found necessary to give injections once or twice weekly in 29 patients, and daily or every other day in 10 patients.

Treatment was individualized for each patient. We did not place complete dependence on the mercurial diuretics. We prescribed digitoxin, fluid restrictions, low sodium intake, rest and ammonium chloride as indicated.

The purpose of our study was to determine the efficacy of oral Theopropanol-Mersalyl as a replacement for the parenteral mercurial diuretic.

For those patients who required mercurial injections once or twice weekly, we prescribed Theopropanol-Mersalyl, one tablet three times daily after meals. For those

patients who required the more frequent injections we prescribed two tablets after meals daily. We used digitoxin and low sodium diets as concomitant treatment.

We observed that a number of patients with arteriosclerotic heart disease could be adequately maintained on one tablet two to three times daily, and in some cases one tablet daily was found to be effective.

Variations in the dosage of Theopropanol-Mersalyl were based on the clinical response of the patients.

Results

All of the patients with arteriosclerotic heart disease and two with hypertensive heart disease were adequately controlled with oral Theopropanol-Mersalyl.

It was found necessary to supplement the Theopropanol-Mersalyl with ammonium chloride in four patients with hypertensive heart disease and in the four patients with rheumatic heart disease. In the rheumatic heart disease group it was found necessary to administer an occasional intramuscular injection of the mercurial diuretic.

Laboratory studies, as part of the program, included urine analysis, blood counts and occasional stool examination for occult blood.

Theopropanol-Mersalyl did not produce an acute profuse diuresis so frequently observed with the use of parenteral mercurials.

Side effects resulting from this therapeutic regimen were relatively few and not severe.

Gastro-intestinal disturbances, such as mild cramps and diarrhea, occurred in ten days to two weeks in about 20 percent of the patients on six tablets of Theopropanol-Mersalyl daily. Following withdrawal of the medication for a few days, the side effects disappeared. Treatment was resumed with two or three tablets daily with good therapeutic effect and no reappearance of the side effects.

Urine analyses and blood counts showed no significant changes during treatment. Occasional stool examinations in some of the patients complaining of mild abdominal cramps revealed no evidence of occult blood.

Comment

In a series of 39 ambulatory patients with congestive heart failure, Theopropanol-Mersalyl in tablet form for oral administration was found to be an effective replacement for parenteral mercurial diuretics. Side effects were few and mild; none severe enough to warrant eliminating this combination from the therapeutic regimen.

We suggest that Theopropanol-Mersalyl (oral) should constitute a necessary addition to the physician's armamentarium for the medical management of congestive heart failure arising from arteriosclerotic heart disease, hypertensive heart disease and rheumatic heart disease.

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CASE PRESENTATION

Chronic Hyperplasia of the Prostate

The case here presented is not interesting because it is an unusual case, but because it is a case which is frequently seen in general practice and which could be traced back to 1914.

In September, 1914, this male patient, then 36 years of age and married, was seen by a general practitioner. His father had died from an accident at age 75, the mother from an undetermined cancer at age 45, 3 brothers were living and healthy, one sister had died from a cause unkown to the patient. He was 5'8", and weighed 150 pounds. He had had rheumatic fever for one month in 1903 and a hemorrhoidectomy in 1907. The physicial examination included the cardiovascular system which was essentially negative.

The first report of hospital treatment was in November, 1937. At that time, hypertrophy of the prostate gland was found with chronic prostatitis and retention of urine; a bilateral vasectomy and a suprapubic cystotomy were performed.

A second admission to the hosptial took place in April, 1938. The hypertrophy of the prostate was still present and a surgical fistula of the bladder was found. A transurethral prostatectomy was done and the bladder fistula was treated by strapping.

The patient was again hospitalized in July, 1938 because of a persistent fistula of the bladder; this time the fistula was excised and the bladder was closed. Yet, in August of the same year, hospitalization was again necessary because of a renewed leaking of the bladder fistula which was treated by bed rest and strapping.

The next hospital admission occurred in June, 1939 because of the chronic fistula of the bladder; bed rest and catherization were the methods of management. In December, 1940 another admission to the hospital became necessary. This time the hypertrophy of the prostate gland had recurred and the fistula of the bladder was unchanged. A prostatectomy and excision of the fistula of the bladder were performed.

The patient returned to the hospital in July, 1948. He complained of bleeding from the bladder which was first observed about three weeks before admission. He had a blood pressure of 172/108; the pulse rate was 92 per minute; heart and lungs showed no pathology. Rectal examination exhibited a recurrence of the prostatic enlargement with hard and endurated edges and considerable pain. A cystoscopy was performed; around the left ureter a growth was visualized which seemed to be an extension from the prostate. A biopsy was done. The pathological report was unsatisfactory, however, because in the specimen only massive hemorrhage could be detected. The laboratory findings were as follows: Urine: 4 plus albumin, rare W.B.C., gross blood. Blood Count: H.B. 91%, R.B.C. 5,340,000, WBC, 5,900. Differential Count, normal. Kahn reaction, negative. Acid Phosphatase (King Armstrong), 4.0 units. N. P. N. in blood, 30 mgs. percent. The patient was treated with stilbesterol and discharged into the care of his family physician, with the tentative diagnosis of carcinoma of the prostate.

The last re-admission to the hospital occurred in April, 1951. He was admitted as an emergency case with sharp pains in the right side of the abdomen and anuria for the last 24 hours. The general examination

showed a rather well nourished man, with a pulse rate of 128 per min., a blood pressure of 200/100, normal heart, fine moist rales at the base of the right lung. Laboratory findings were as follows: Blood Count: hemoglobin, 78%; R.B.C., 4,500,000; W.B.C. 9,200. Normal differential count. Blood N.P.N., 39. Urine: Specific Gravity, 1014, albumin 2 plus, sugar, negative, W.B.C., 15-20 per hpf, R.B.C. 50 to 55 per hpf, 0 to 1 fine granulated casts per hpf. Sedimentation rate, fall in 60 min., 24 mm. (Cutler). Acid Phospatase in Serum, 4.0 units. X-ray studies: The intervertebral spaces were narrowed; the bodies of the lumbar vertebrae showed only slight to moderate hypertrophic changes; the abdomen showed considerable gas and fecal material in the intestinal tract, otherwise normal. The chest film showed mild enlargement of the heart shadow and definite widening of the aorta, particularly the ascending portion. Cystoscopy was performed by the urological consultant. There was no fixation of instrument as would be expected in cancer of the prostate. The vesical neck was obstructed by the subcervical lobe; there was hypertrophy and moderate enlargement of the lateral lobes. The bladder was grossly trabeculated; there was no evidence of stone, tumor or diverticulum. The diagnosis was benign prostate hyperplasia. Transurethral resection was recommended but refused by the patient. Six months later, in October, 1951, the patient died. The primary cause of death was listed as being cerebral hemorrhage.

This is a rather typical case of the course of a chronic hyperplasia of the prostate gland, which, in this particular instance lasted from 1937 to 1951 and which necessitated eight hospitalizations and four operations.

In the discussion about this case, it was stated that a vasectomy in the treatment of hyperplasia of the prostate gland had been discarded and that by some hurologists it was only used as a preparation for porstatectomy. Vasectomy were known as Steinach I operation; and bilateral ligature of the efferent duct of the testes, the Steinach II operation, was en vogue for some time but according to A. Jacobs (A Critical Review of Steinach II operation as a method of treating prostatic obstruction, Glasgow Med. J., 131 :136, 1939) the final results were disappointing. Another staff member pointed out that transurethral resection may give relief of certain urinary symptoms but that according to R. A. Moore (Benign Hypertrophy and Carcinoma of the prostate. Surgery, 16:152, 194), the basis of the disease remains unchanged. Another physician stressed that it had been demonstrated many times in the literature that recurrence or regrowth of the prostate gland after resection are frequent (H. L. Kretschner, Recurrence following suprapubic prostatectomy for benign hypertrophy. Surgery, Synec., and Obst., 53:829, 1931 — J. Thompson Walker Failure of prostatectomy Lancet, 1:109, 1927). Another member of the staff stated that in a recent paper by J. A. Taylor (Prostatectomy in the Aged; J. Am. Med. Assn., 9:808, Oct. 27, 1951) the author admitted that "4.8% were readmitted for further resection."

The question of the serum acid phosphatase levels also was discussed. According to H. Q. Woodward and A. L. Dean (The Significance of Phosphatase findings in cancer of the prostate; J. Urology, 52:158, Jan. 1947) the absence of high serum acid phosphatase levels does not signify the abscence of cancer of the prostate. However, according to C. D. Creevy (Cancer of the Prostate Gland, J. Am. Med. Assn. 6:410, Oct. 1940) in 58% of bone metastasis due to prostate cancer, acid phosphatase will be elevated in the serum.

DIAGNOSTIC SUGGESTIONS

Heart Lesions Following Chest Injuries

A great variety of cardiac lesions occur following nonpenetrating injuries to the chest. Disturbances of heart rhythm are frequently encountered. Among these, auricular fibrillation is second in incidence only to sinus tachycardia and is considered the most prevalent arrhythmia following nonpenetrating trauma to the chest. Auricular flutter is rare after indirect trauma; only six cases have been reported in the literature. Author describes a case of transient auricular flutter following a nonpenetrating injury to the chest in a 59 year old man, known to have hypertension, auricular premature systoles and P wave abnormalities in the EKG. (S. Weinberg and A.H. Schoenwetter. Arch. Int. Med. 2:252, August 1951).

Periorbital Dermatitis

Cosmetics are by far the most frequent cause of periorbital dermatitis, with cream-based shampoos such as Lustre Creme, Halo, and Vita Fluff (together with the powder foundations) running a close second to nail dyes and liquid polishes. Overtreatment is third, with occupational causes running fourth. An occasional instance of significant reactions was found to hair dye, rouges, powders, deodorants, eyelash preparations, and cologne and the incidence of reactions to the modern cold wave fluids were much less than expected. (B. Swinny, Ann. Allergy. 6:774, November-December, 1951)

Constrictive Pericarditis

"Constrictive pericarditis is frequently unrecognized for long periods and masquerades as rheumatic heart disease, tuberculous peritonitis or cirrhosis of the liver. A young person with an apparently normal heart but with evidence of circulatory failure such as acites, pleural effusion, peripheral edema, or all three, whose heart sounds are quiet, or muffled and unaccompanied by a murmur, whose cardiac borders move but little under fluoroscopy, whose arterial pressure is low and pulse pressure small, whose venous pressure is above 15 cm. of water in the arm, and perhaps 5 to 10 cm. higher in the leg, due most probably to greater constriction of the inferior vena cava, whose electrocardiogram exhibits a low voltage and inversion of the T waves, should be strongly suspected of having constrictive pericarditis. When a febrile illness, accompanied by pericardial effusion and by a large cardiac shadow by roentgenogram, is followed by reduction of the cardiac area, but by signs of increasing cardiac failure such as acites, pleural effusion and increased venous pressure, one should strongly suspect the development of compression of the heart due to contraction of an inflamed and fibrous pericardium." (E. Holman. The Journal-Lancet, 10: 420, October 1951).

Hypoglycemia (hyperinsulinism)

Many cases of functional hyperinsulinism and hypoglycemia are essentially caused by visceroptosis. The mechanism by which visceroptosis may result in functional hyperinsulinism is based on the twisting of the pancreatico-duodenal vein producing venostasis in the pacreas. Author presents 21 cases with glucose tolerance tests displaying this syndrome. In these cases the use of pelvic supports provided marked relief and the symptoms of hypoglycemia were improved. 11 of the 21 cases were under 30 years of age. (H. Layzer. The Am. J. Dig. Dis. 10:300, October 1951).

Tests for Chloride in Urine

This test is important in hypertensive cases who are on a low salt diet. The test consists of adding a tablet combining silver nitrate and potassium chromate to 15 drops of distilled water with five drops of urine. The tablet dissolves after a few minutes and the liquid assumes a pink or reddish-brown tint if the sodium content is less than 60 mg.%. If the color does not change, a second tablet is used. If again no change is seen, up to five tablets may be added. The chloride content is from 60 to 120 mg.% if the color occurs after two tablets, between 120 and 180 mg.% if it occurs after three tablets, between 180 mg.% and 250 mg.% after 4 tablets, and between 250 and 320 mg.% after 5 tablets. (W. B. Looney; C. D. McGrath and W. A. Thomas, J. Lab. and Clin. Med. 38:275, 1951).

Mumps Menigoencephalitis

Report on 45 patients who never showed any signs of salivary gland involvement, or, if so, after onset of the menigoencephalitis. Only 12 of the cases had been exposed to mumps. In the remaining 33 patients the diagnostic problem was solved at the laboratory. The value of the complement fixation test differentiating between antibodies to the S and V antigens has been well established. An early tentative diagnosis based on the anti-S anti-V pattern could be done in several of the cases within the first two days after admission. The test result after such a short time is, however, not satisfactorily reliable. The diagnosis was, then confirmed by demonstration of high antibody levels to S and V at the onset of primary orchitis in an experimentally exposed case. It also was shown that virus could be idolated from the saliva in patients with meningoencephalitis who had no signs of salivary gland affection. In the differential diagnosis the following conditions should be considered: Meningoencephalitis caused by virus of herpers simplex, lymphopathia venereum, Western and Eastern equine encephalomyelitis, St. Louis encephaltis, Caxsackie disease and infectious mononucleosis; meningoencephalitis due to spirochetes (Weil's disease, CNS syphilis); Secondary meningo-encephalitis caused by tumors or abscesses of the brain; multiple sclerosis; Guillain-Barre syndrome. (L. P. Kravis; M. M. Sigel and G. Henle. Pediatrics, 8: 204, August, 1951.)

Meteorological Influence

Curry calls Aran, to which he ascribes an essential biotropic effect, the odorless active oxygen of the atmospherical air in contradiction to the artificially produced Izon. The Aran content of the air fluctuates according to the weather situation. It is high in cold fronts and low in warm fronts. As there are human beings who react more to high and others who react more to low oxygen values, Curry has established three types of weather sensitiveness; (a) cold sensitives (K-types); (b) warm sensitives (W-types); and in-between (c) large groups of mixed sensitives (G-types). An exact analysis of the physiological changes (pH, calcium content of blood, blood sugar, blood iodine, BMR, number of leukocytes, etc.) and of the subjective phenomenona (increased or decreased efficiency, sexual irritability, sleep disturbance, etc.), lead to the conclusion that high Aran values correspond with vagotropic and low Aran values with sympathetico tropic effects so that the K-types are mostly identical with vagatonics and the W-type with sympathetico tonics. It also appears that the K-types are more frequently connected with leptosomic habitus and the W-types with pyknic habitus. (B. Sanders. Deutsche med. Wochenschr., 1951. No. 2.)

Occlusion of the Internal Carotid Artery

From the literature author shows that occlusion of the internal carotid artery is a much more frequent occurrence than generally appreciated. The carotid sinus is the site of predilection. Atheroscerosis is the basic pathological process. The clinical syndrome is variable, yet characteristic. The main sign is hemiplegia which is preceded by fleeting neurological symptoms such as paralysis, paresthesia, blindness, dizziness, aphasia or unconsciousness. Headache is a common symptom; it is steady, migraine-like, situated above the ipsilateral eye or on the temple. It appears independent of the fleeting neurological signs. The exact diagnosis rests on ateriography and pathological evidence but the clinical picture is pathognomic in most cases. Hemiplegia of unknown etiology in younger individuals is often due to a disease of the internal carotid artery. Absence of carotid pulsation in the neck during the acute stage of hemiplegia is of diagnostic help. Postoperative hemiplegia, as well as stroke following vasuclar collapse, is often due to thrombosis of the internal carotid artery distal to the atherosclerotic narrowing in the region of the carotid sinus. Cerebral embolism of unknown origin may arise from a thrombus situated in the carotid sinus. (M. Fisher. Arch. Neurol. & Psychiat. 3:346, March 1951)

Boeck's Sarcoid

Boeck's sarcoid is a chronic, low-grade, granulomatous process of unknown cause, with fever, malaise, loss of weight, anorexia, and special symptoms or signs referable to one or more organs of the body. Common manifestations are lesions of the skin, enlargement of lymph nodes, parotitis, visual loss associated with uveitis (the last two ones being sometimes referred to as uveoparotid fever), and lesions of the lung. Elevation of blood-globulin, x-ray changes in the lungs and phalanges, a negative tuberculin test, and a positive reaction to the test are the chief laboratory findings. The characteristic histologic findings are those of "noncaseating tuberculosis" (formation of 'tubercles' with epithelioid cells, lymphocytes, and occasional giant cells). The disease may involve any part of the nervous system. 51 cases of involvement of the central nervous system have been reported in the literature. Author reports on three additional cases. Diabetes insipidus is the commonest symptom of involvement of the central nervous system, and its appearance should suggest the possibility of the disease. Other signs include visual loss, convulsive seizures, confusional states, hemiplegia, cerebellar signs, sensory deficits, and papilledema. A low-grade chronic meningeal reaction may also occur and may be accompanied with a significant reduction of the sugar content in the spinal fluid. (W. H. Pennell. Arch. Neurol. & Psychiat. 6:728, Dec. 1951).

Pneumaturia

Expression of gas in the urine during micturition is a rare phenomenon. The authors differentiate three etiological groups: 1) introduction of gas in the urinary tract by instrumentation, such as catheterization; 2) introduction of gas through fistulous opening; 3) formation of gas within the urinary tract itself (primary pneumaturia); this phenomenon may or may not be associated with glycosuria. Authors report on a case of pneumaturia in a diabetic patient associated with bladder infection due to A. aerogenesm with elimination of the pneumaturia after A. aerogenes had been cleared by means of streptomycin (E. W. Czerbinski and M. M. Karl, J. Missouri State Med. Soc., 9:715, September 1951).

Aluminosis

Author examined 97 workers employed at an aluminum smelting plant. Of 36, which were obviously occupied with smelting, three had a serious pulmonary cirrhosis, one a beginning fibrosis and eight milder involvement of the lungs. In discrepancy with silicosis, the x-ray picture shows less severe alterations as should be expected considering the serious clinical pictures. The main symptom is dyspnea and chronic bronchitis. If death occurs, it is generally due to acute breathing insufficiency. Few deaths due to spontaneous pneumothorax also have been reported; however, only very few combinations with tuberculosis and no case of cor pulmonale. (H. Modder and T. Schmitt. Deutsche med. Wchnschr., 3:84,1951)

Thumb Position

Author reports on nine clinical signs of thumb position as an aid in diagnostic screening of paralyses of the brain, cord, and peripheral nerve type: "Cortical" thumb.—In spastic types of paralysis the thumb is drawn into the palms (lesions above the 5th cervical level; "Midbrain" Thumb.—Slow, dyskinetic movements of the thumb to the ball of the index (Parkinsonism — the striatal level); "Cerebellar" thumb. —By having the patient touch the tip of the thumb to the tip of the nose, intention tremor may be detected; "Cord" or "Amytrophic" thumb. — In lesions of the cord, the tip of the thumb can be placed over the knuckle, at the base of the index finger; "Radial Nerve" thumb. — The tip of the thumb cannot be held in the 'cock-up' position, owing to paralysis of extensors of the wrist and thumb; "Medium Nerve" thumb. —The patient cannot appose the thumb to any one of the fingers or flex or abduct it; "Ulnar Nerve" thumb. — The patient is unable to touch the tip of the little finger to the tip of the thumb; "Flaccid" thumb.—As a result of a lesion of the brachial plexus, cord, or cortex, the thumb has no remaining movement; "Fixed" thumb.—This may be due to such conditions as joint involvement, contracture, injury, bone disease. Arch. Neurol. & Psychiat. 4: 531, Oct. 1951).

Portal Hypertension

Author considers the etiology of portal hypertension and lists the sites and types of lesions producing portal hypertension: I. Intraphepatic Block. A. Cirrhosis of the Liver 1) Laennec cirrhosis; b) schistosomal cirrhosis; c) biliary cirrhosis; 4) infectious hepatitis; 5) toxic cirrhosis; 6) hemochromatosis with cirrhosis; 7) Cruveilhier-Baumgarten Syndrome. B. Vasospasm in hepatic veins. II. Extrahepatic Block. A. Chronic Thrombosis of Veins. (hepatic, portal, splenic). 1) inflammatory. a) cavernous transformation; b) endophlebitis. 2) traumatic. B. Stenosis of Vein (portal): Congenital (site of fetal valves). C. Compression of Veins (portal or splenic). 1) inpancreatitis); 2) pancreatic cyst; 3) tumors; 4) aneurysm of splenic artery. (L. M. Rousselot. Rev. of Gastroenterol. 8:575, August 1951).

Diabetes Mellitus

"It appears probably that a relatively short period of ACTH administration may constitute an excellent means of detecting latent diabetes mellitus. Conversely, we are relatively certain that patients who do not develop hyperglycemia on continued ACTH or cortisone treatment in all likelihood have no potential diabetic tendency." (G. W. Thorn. The Clinical Problems of Advancing Years. March 15, 1951. Smith, Kline & French Laboratories, Philadelphia, 1951, p. 21).

Procaine Amide-Ectopic Rhythms

Procaine amide is different from procaine as the para-aminobenzoic acid and the diethylaminoethanol are joined through an NH group rather than an ester. Procaine amide was used in 98 episodes of arrhythmias. corroborated by EKG, in 78 patients. The drug was administered intravenously in 21 patients followed by oral administration, and only orally in 45 patients. The intravenous dose was given at a rate of not more than 200 mg. per min., until toxic side-effects were observed or until 1 Gm. had been given. The oral dose varied; it averaged 0.5 to 1.0 Gm. every 4 hours. The type of arrhythmias treated were: ventricular tachycardia, nodal tachycardia, paroxysmal auricular tachycardia, auricular flutter, multiple premature ventricular contractions. The drug was particularly effective in arrhythmias of auricular origin. (K. Berry; E. L. Garlett; S. Bellet and W. I. Gefter. Am. J. Med., 11:431, 1951).

Pilonidal Disease

Operation: The patient is placed prone on the table with a pillow under the hips. A midline incision is made over the pilonidal area. The incision is carried down to the base of the cyst usually to the sacral fascia. An attempt is made to have both extremitis of the wound sloping down towards the base at an angle of 45 or more degrees. With a small blade the skin edge is undercut on each side of the incision for a depth of ½ inch. Allis forceps are applied to the skin edge. Double hooked forceps are now applied to the lateral cyst wall. With traction and sharp dissection the cyst wall is peeled away laterally until normal fat globules are seen; the cyst being removed in lateral halves down to the sacral fascia. After hemostasis the skin sutures are inserted. (H. W. Parker. The Am. J. of Proctology, 3:111, September 1951).

Postoperative Vomiting

In order to prevent postoperative nausea and vomiting the author administered 100 mg. of Dramamine orally from 45 to 60 minutes before anesthesia was started and again the same dose one half hour to two hours after termination of the anesthesia. 25.6% of the thus treated patients vomited slightly in comparsion with 62% of a group of patients who had not received Dramamine. The author feels that dramamine has a direct effect on the vomiting center and that because of its parasympatholytic effect it counteracts spasm of the duodenum caused by administration of morphine. (H. Laborit. La presse medicale, 59:875, June 20, 1951).

Herpes Zoster

The author used Pendiomid in 8 cases of herpes zoster. Pendiomid is a preparation similar to tetraethylammonium bromide in that it inhibits in small doses the transmission in the ganglionar synapses. The authors advised to start the treatment with a dose of 40 to 50 mg. intramuscularly and to increase the dose later to 100 mg. (L. Norpoth; P. Druegemoeller, and T. Flossdorf. Deutsche Med. Wchnschr. 76:1066, August 31, 1951).

Pyogenic Dematoses in Children

The author recommends topical application of neomycin in form of an ointment or in aqueous solution which appears to be more effctive than aureomycin or bacitracin ointments. Gratifying results were observed in cases of impetigo contagiosa, impetiginous fermatitis, ecthyma (ulcerative impetigo, bullous impetigo, pustular folliculitis, furunculosis, paronychia, sty, bacterial otitis externa and granuloma pyogenicum. Systemic administration of antibiotics generally is not necessary. (C. S. Livingood. Texas State J., Med. 7:469, July 1951).

Hand Injuries

Author recommends the following steps: protection of the open wound from infection; management of bleeding (direct pressure; compression bandage); determination of extent of injury (nerves, tendons); x-ray examination; transformation of contaminated wound into a clean wound (cleansing area around wound with plain white soap and sterile water; gentle washing of wound and irrigation with salt solution; debridement is risky when nerves and tendons are exposed); reduction of fractured bones—'Universal Splint' as devised by Mason and Allen has proved to be of great value; repair of divided nerves and tendons, but if cleanliness of wound is questionable it is better not to repair the nerves and tendons immediately; suture of fascia; if covering tissues have been destroyed, closure of the wound may be difficult; use of skin graft, of a sliding graft or a flap from a distance may solve the problem; sulfonamides and antibiotics are of great value in preventing spread of infection and in bringing invasive infection under control; post-operatively change of dressing within 6 or 8 days should be made only when patient's temperature rises. (S. L. Koch. Pennsylvania Med. J., 54:721, August 1951).

Periarthritis of the Shoulder

If, in acute lesions, x-rays are negative for calcium deposits, novacain injections or x-ray therapy are equally effective. The shoulder should be splinted for a few days during the acute phase of pain and thereafter the regime of physical therapy should follow. If x-ray reveal fluffy calcification, novocain injections and needling are likely to produce a prompt effect. In subacute lesions which generally do not go through an acute phase, x-ray therapy followed by physical therapy is appropriate. For more obstinate subacute lesions with calicified deposits, surgical intervention may be necessary: exposure of the supraspinatus tendon, excision of the thickened subdeltoid bursa, incision and curettage of the calcified masses in the supraspinatus tendon. Simultaneously manipulation of the shoulder should be performed. In chronic periarthritis-adhesive capsulitis or 'frozen shoulder' x-ray therapy, physiotheraphy, graded exercises, treatment of menopause if present should be recommended; the outcome is unpredictable. Cortisone has been tried recently; improvement has been reported. (H. Smith. J. of the Tennessee State Med. Ass., 44:330, August, 1951.)

BOOK REVIEWS

Books on Internal Medicine

An interesting presentation of comparative physiology in endocrinology[1] deals with the development of the thyroid and parathyroid glands and their metabolic role through the vertebrate phylum. This new approach contributes much to the understanding of the problems involved. Another book on thyroid function [2] has as its subject the influence of thyroid dysunction on vascular degeneration. It is the author's contention that hypothyroidism plays as etiological role in vascular degeneration associated with arteriosclerosis. Allergic and toxic reactions to penicillin administration have been an important topic in the recent medical literature. A compilation of these experiences in all aspects of employment of this antibiotic in the last decade has been judiciously and critically set forth.[3] A first monograph of a comparatively new field of investigation deals with the antogonism of metabolic substances in the sense that some metabolites can be counteracted by metabolites of similar structure. The author gives an extensive summary on the experiences gathered within the last 10 years and of the pharmacological potentialities. The bibliography is complete.[4] A relatively brief, but excellent presentation on allergic reactions in childhood familiarizes the reader with the special types of allergic diseases in the young patient, with the diagnostic procedures, the prophylaxis and the treatment. The exposition is to the point and lucid. The general practitioner will welcome to have this informative book on hand.[5]

1. Comparative Physiology of the Thyroid and Parathyroid Glands. by Walter Fleischmann, M.D. Charles C. Thomas Publisher, Springfield, Ill. 78 pages. Cloth. $2.25. 1951.
2. Thyroid Function and Its Possible Role in Vascular Degeneration. by William B. Kountz. Charles C. Thomas, Publisher. Springfield, Ill. 78 pages. Cloth. $2.25, 1951.
3. Penicillin in Decade 1941-1951. Sensitizations and Toxicities. by Lawrence W. Smith, M.D., and Ann D. Walker, R.N. Arundel Press, Inc. Washington, D.C. 1951. 122 pages. Cloth. $2.50.
4. A Study of Antimetabolites. by D. W. Wolley. John Wiley & Sons, Inc., New York, 1952, 269 pages. Cloth. $5.
5. Allergy in Relation to Pediatrics. by Bret Ratner, M.D. Bruce Publishing Comapny, Saint Paul and Minneapolis. 1951. 228 pages. Cloth. $3.75.

Books of General Interest

A biologist's philosophy[1] is always an interesting holistic approach to medicine as a natural science. Sherrington deals in his well known comprehensive way with problems of life, mind, growth, etc., and shows forth the potentialities and limitations of chemical, physical and electo-chemical understanding of biological phenomena and reactions. Dr. Ficarra's book on medical ethical problems [2] is arresting in many ways. The presentation, athough allegedly not written exclusively for catholic physicians, adheres orthodoxically to catholic principles (it carried the 'Nihil Obstat' of the Censor Librorum) and repudiates any different ethical aspect. Still, in the majority of the statements one can heartily agree with the author, although in some instances a less dogmatic view would have afforded a more gratifying reading. Another small volume on ethics on a broader scope, however, is the profound discussion of a medical man, a professor of pharmacology, and a phi-

losopher, on the foundations and teleology of ethics.[3] Dr. Leake espouses the principles of a biological, evolutionary 'ethicogenesis' while Professor Romanell stresses the deductive approach and the theory of values in contradiction to 'adaptive factors' as dynamics of an ethical aim of 'mutual satisfaction'. A book on Alfred Nobel as published by outstanding members of the Nobel Foundation is much more than a description of a unique personality and an account on the Nobel-prizes. It is a critical history on medical, chemical, physical, literary, and political progress since the initiation of the Nobel foundation, a very well prepared exposition of scientific development, which will be read with great benefit by every physician.

1. Man on His Nature. by Sir Charles Sherrington. Second Edition. Cambridge University Press. 1952. 300 pages. Cloth. $6.
2. Newer Ethical Problems in Medicine and Surgery. by Bernard J. Ficarra, M.D. The Newman Press, Westminster, Md., 1951, 168 pages. Coth. $3.75.
3. Can We Agree? A Scientist and A Philosopher Argue About Ethics. by Chauncey D. Leake and Patrick Romanell. The University of Texas Press, Austin. 1950, 110 pages. Cloth.
4. Nobel. The Man and His Prizes. Edited by the Nobel Foundation, by H. Schuck et others. University of Oklahoma Press, Norman, 1951. 620 pages. Cloth. $6.

Books on Neurology

The relationship of the autonomic nervous system with behavior has been a major issue in neurology and psychiatry since the publication of the book 'Die Vagotonie' by H. Eppinger and L. Hess in 1910. Dr. Kuntz[1] has compiled the known facts very ably and has integrated them critically. The book gives a clear description of the anatomy of the autonomic nervous system and its functions. The chapter on the physiology for which the autonomic system is responsible is judiciously prepared. While the main and concluding chapter of the book, 'Visceral Neural Factors in Personality' gathers all evidence on the relationship of autonomic nervous system and emotions, it does not produce any new aspects. The many gaps of our knowledge regards emotion, intelligence and behavior in general are admitted. The great value of this exposition is that the problems of behavior are approached from anatomical and physiological viewpoints with sound reasoning which affords a wholesome vantage ground for further research in midst of the often hazy maze of psychological considerations on the same subject. A topic equally interesting and important both for neurologists and surgeons is causalgia[2] which has come particularly in the foreground as a problem in military surgery. The incidence after trauma fluctuates between 2 and 5%. The author espouses the purely organic etiology as 'those subjected to psychiatric survey after relief of pain showed no constitutional psychogenic factor as an underlying cause'. The small volume describes the author's experiences with 105 cases in military service and some cases in civilian practice treated with sympathectomy. In the etiological considerations author differentiates between painful phantom limb and causalgia; painful phantom limb is not a surgical problem. The book is consistent in presentation; the illustrations are excellent.

1) Visceral Innervation and Its Relation to Personality. By Albert Kuntz, Ph.D., M.D. Charles C. Thomas, Publisher, Springfield, Ill., 1951. 152 pages. Cloth. $4.50.

2) Causalgia. By Frank H. Mayfield, M.D. Charles C. Thomas, Publisher. Springfield, Ill., 1951. 65 pages. Cloth. $2.25.

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